

**Abstract**

Circuitry within a semiconductor die is analyzed by applying an electric field without necessarily directly accessing the circuitry. According to an example embodiment of the present invention, an electric field is applied to a semiconductor die and used to stimulate circuitry therein. A response of the die to the electric field is detected and used to detect an electrical characteristic of the die. This is particularly useful in applications where it is desired to direct stimulation to the die on a nanoscale level, such as when using a fine probe tip (*e.g.*, a scanning probe microscope tip) to apply the electric field. In this manner, the response of the die can be mapped to circuitry within a few nanometers of the probe tip.